

Search Plan and Results

Question

[Risky Foods: To what extent do US consumers eat raw or undercooked animal foods? \(DGAC 2010\)](#)

[CLEAN: What techniques for washing fresh produce are associated with favorable food safety outcomes? \(DGAC 2010\)](#)

[Clean: To what extent do US consumers follow techniques for washing fresh produce that are associated with favorable food safety outcomes? \(DGAC 2010\)](#)

[CLEAN: What techniques for hand sanitation are associated with favorable food safety outcomes? \(DGAC 2010\)](#)

[CLEAN: To what extent do US consumers follow techniques for hand sanitation that are associated with favorable food safety outcomes? \(DGAC 2010\)](#)

Date Searched

6/1/09

Inclusion Criteria

- January 2004 to May 2009
- Human subjects
- English language
- International
- *Sample size*: Minimum of 10 subjects per study arm; preference for larger sizes, if available
- *Dropout rate*: Less than 20%; preference for smaller dropout rates
- Ages two years and older; look at research for adults and children, pregnant women and older adults*
- *Populations*: Healthy and those at elevated risk of adverse outcome from foodborne illness (pregnant women and unborn baby (fetus), young children (less than four years old), older adults*, those with weakened immune systems (cancer, leukemia, diabetes, liver or kidney disease, HIV/AIDS, autoimmune disease (e.g., lupus), persons with poor underlying health.

*MESH terms to search on include: Aged [aged (65 through 79 years of age); aged, 80 and over; frail elderly].

Exclusion Criteria

- International Studies
- Medical treatment/therapy
- Diseased subjects (already diagnosed with disease related to study purpose)
- Malnourished/third-world populations or disease incidence not relative to US population (e.g., malaria)
- Animal studies
- In vitro studies
- Studies in health care settings
- Articles not peer reviewed (websites, magazine articles, Federal reports, etc.).

Search Terms: Search Vocabulary

(home OR homes OR consumer* OR household* OR domestic OR family OR families) AND handwashing[majr] AND ("Food Contamination"[Mesh] OR "Food Poisoning"[Mesh] OR "Cross Infection"[Mesh] OR "food sanitation" OR "food preparation" OR "food safety" OR foodborne diseases* OR "foodborne illness*" OR "Health Knowledge, Attitudes, Practice"[Mesh] OR "Anti-Infective Agents, Local"[Mesh] OR gels[mesh] OR soaps[mesh]) 69 hits

(home OR homes OR consumer* OR household* OR domestic OR family OR families) AND ("Handwashing"[Mesh] OR washing[title] OR cleaning[title] OR cleansers[title] OR dishwash*[title] OR sanitiz*[title] OR sterilize*[title]) AND ("Food Handling"[MeSH Terms] OR food[Mesh] OR "Eating"[Mesh] OR "Cooking and Eating Utensils"[Mesh])? 93 hits

"Handwashing"[Mesh] OR (washing OR cleaning OR cleanser* OR dishwash* OR sanitiz* OR sterilize*) AND ("Food Handling"[MeSH Terms] OR food[Mesh] OR "Eating"[Mesh] OR "Cooking and Eating Utensils"[Mesh])

(home OR homes OR consumer* OR household* OR domestic OR family OR families) AND ("Handwashing"[Mesh] OR washing OR cleaning OR cleansers OR dishwash* OR sanitiz* OR sterilize*) AND ("Food Handling"[majr] OR food[majr] OR "Eating"[majr] OR "Cooking and Eating Utensils"[majr])

(home OR homes OR consumer* OR household* OR domestic OR family OR families) AND (washing OR dishwasher* OR cleaning OR cleansers OR sanitiz* OR sterilize*) AND ("Food Contamination"[Mesh] OR "Food Poisoning"[Mesh] OR "Cross Infection"[Mesh] OR "food sanitation" OR "food preparation" OR "food safety" OR foodborne diseases* OR "foodborne illness*" OR "Health Knowledge, Attitudes, Practice"[Mesh] OR "Anti-Infective Agents, Local"[Mesh] OR gels[mesh] OR soaps[mesh])

" Food Handling"[MeSH Terms] OR food[Mesh] OR "Eating"[Mesh] OR "Cooking and Eating Utensils"[Mesh])

(home OR homes OR consumer* OR domestic) AND (raw OR uncooked OR undercooked) AND food[mh]

(home? OR consumer? OR domestic) AND (raw OR uncooked OR undercooked)(5n)(food or eggs or milk or cheese or dairy or meat or sprouts or poultry or chicken or beef or fish? or shellfish or seafood)

Electronic Databases

PubMed.

BIOSIS, CAB Abstracts, FSTA, AGRICOLA, Science Direct.

Total hits from all electronic database searches: 838

Total articles identified to review from electronic databases: 83

Articles Identified Via Handsearch or Other Means

Hand Search Articles (5)

Aiello AE, Coulborn RM, Perez V, Larson EL. [Effect of hand hygiene on infectious disease risk in the community setting: A meta-analysis. *Am J Public Health*. 2008 Aug; 98\(8\): 1, 372-1, 381. Epub 2008 Jun 12. PMID: 18556606. \(hand search\).](#)

Dharod JM, Paciello S, Bermúdez-Millán A, Venkitanarayanan K, Damio G, Pérez-Escamilla R. [Bacterial contamination of hands increases risk of cross-contamination among low-income Puerto Rican meal preparers. *J Nutr Educ Behav*. 2009 Nov-Dec; 41\(6\): 389-397. PMID: 19879494.\(hand search\).](#)

Larson EL, Lin SX, Gomez-Pichardo C, Della-Latta P. [Effect of antibacterial home cleaning and handwashing products on infectious disease symptoms: A randomized, double-blind trial. *Ann Intern Med*. 2004 Mar 2; 140\(5\): 321-329. PMID: 14996673; PMCID: PMC2082058. \(hand search\).](#)

Sandora TJ, Shih MC, Goldmann DA. [Reducing absenteeism from gastrointestinal and respiratory illness in elementary school students: A randomized, controlled trial of an infection-control intervention. *Pediatrics*. 2008 Jun; 121\(6\): e1, 555-e1, 562. PMID: 18519460. \(hand search\).](#)

Vessey JA, Sherwood JJ, Warner D, Clark D. [Comparing hand washing to hand sanitizers in reducing elementary school students' absenteeism. *Pediatr Nurs*. 2007 Jul-Aug; 33\(4\): 368-72. PMID: 17907739. \(hand search\).](#)

Summary of Articles Identified to Review

Number of Primary Articles Identified: 29

Number of Review Articles Identified: 6

Total Number of Articles Identified: 35

Number of Articles Reviewed but Excluded: 48

List of Articles Included for Evidence Analysis

QUESTION

CLEAN: To what extent do US consumers follow techniques for hand sanitation that are associated with favorable food

safety outcomes?

Reviews/Meta-analyses Citations (0)

None.

Primary Research Citations (5)

Abbot JM, Byrd-Bredbenner C, Wheatley V, Cottone E, Clancy M. Observed hand washing behaviors of young adults during food preparation. *Food Protection Trends*. 2008; 28(12): 912-916.

Anderson JL, Warren CA, Perez E, Louis RI, Phillips S, Wheeler J, Cole M, Misra R. [Gender and ethnic differences in hand hygiene practices among college students. *Am J Infect Control*. 2008 Jun; 36\(5\): 361-368. PMID: 18538703.](#)

Comer MM, Ibrahim M, McMillan VJ, Baker, GG, Patterson, SG. Reducing the spread of infectious disease through hand washing. *J of Extension*. 2009 Feb; 47(1): 1-8.

Dharod JM, Pérez-Escamilla R, Paciello S, Bermúdez-Millán A, Venkitanarayanan K, Damio G. [Comparison between self-reported and observed food handling behaviors among Latinas. *J Food Prot*. 2007 Aug; 70\(8\): 1, 927-1, 932. PMID: 17803151.](#)

Thumma J, Aiello AE, Foxman B. [The association between handwashing practices and illness symptoms among college students living in a university dormitory. *Am J Infect Control*. 2009 Feb; 37\(1\): 70-72. Epub 2008 Oct 3. PMID: 18834732.](#)

QUESTION

CLEAN: What techniques for hand sanitation are associated with favorable food safety outcomes?

Reviews/Meta-analyses Citations (4)

Aiello AE, Larson EL, Levy SB. [Consumer antibacterial soaps: Effective or just risky? *Clin Infect Dis*. 2007 Sep 1; 45 Suppl 2: S137-S147. Review. PMID: 17683018.](#)

Aiello AE, Coulborn RM, Perez V, Larson EL. [Effect of hand hygiene on infectious disease risk in the community setting: A meta-analysis. *Am J Public Health*. 2008 Aug; 98\(8\): 1, 372-1, 381. Epub 2008 Jun 12. PMID: 18556606. \(hand search\).](#)

Haas CN, Marie JR, Rose JB, Gerba CP. [Assessment of benefits from use of antimicrobial hand products: Reduction in risk from handling ground beef. *Int J Hyg Environ Health*. 2005; 208\(6\): 461-466. Epub 2005 Aug 8. PMID: 16325555.](#)

Meadows E, Le Saux N. [A systematic review of the effectiveness of antimicrobial rinse-free hand sanitizers for prevention of illness-related absenteeism in elementary school children. *BMC Public Health*. 2004 Nov 1; 4: 50. Review. PMID: 15518593; PMCID: PMC534108.](#)

Primary Research Citations (13)

Aiello AE, Marshall B, Levy SB, Della-Latta P, Larson E. [Relationship between triclosan and susceptibilities of bacteria isolated from hands in the community. *Antimicrob Agents Chemother*. 2004 Aug; 48\(8\): 2, 973-2, 979. PMID: 15273108; PMCID: PMC478530.](#)

Brown JM, Avens JS, Kendall PA, Hyatt DR, Stone MB. Survey of consumer attitudes and the effectiveness of hand cleansers in the home. *Food Protection Trends*. 2007. 27(8): 603-611. (FSTA Database).

Dharod JM, Paciello S, Bermúdez-Millán A, Venkitanarayanan K, Damio G, Pérez-Escamilla R. [Bacterial contamination of hands increases risk of cross-contamination among low-income Puerto Rican meal preparers. *J Nutr Educ Behav*. 2009 Nov-Dec; 41\(6\): 389-397. PMID: 19879494.\(hand search\).](#)

Fischler GE, Fuls JL, Dail EW, Duran MH, Rodgers ND, Waggoner AL. [Effect of hand wash agents on controlling the transmission of pathogenic bacteria from hands to food. *J Food Prot*. 2007 Dec; 70\(12\): 2, 873-2, 877. PMID: 18095447.](#)

Larson EL, Lin SX, Gomez-Pichardo C, Della-Latta P. [Effect of antibacterial home cleaning and handwashing products on infectious disease symptoms: A randomized, double-blind trial. *Ann Intern Med*. 2004 Mar 2; 140\(5\): 321-329. PMID: 14996673; PMCID: PMC2082058.\(hand search\).](#)

Lee GM, Salomon JA, Friedman JF, Hibberd PL, Ross-Degnan D, Zasloff E, Bediako S, Goldmann DA. [Illness transmission in the home: A possible role for alcohol-based hand gels. *Pediatrics*. 2005 Apr; 115\(4\): 852-860. PMID: 15805355.](#)

Sandora TJ, Taveras EM, Shih MC, Resnick EA, Lee GM, Ross-Degnan D, Goldmann DA. [A randomized, controlled trial of a multifaceted intervention including alcohol-based hand sanitizer and hand-hygiene education to reduce illness transmission in the home. *Pediatrics*. 2005 Sep; 116\(3\): 587-594. PMID: 16140697.](#)

Sandora TJ, Shih MC, Goldmann DA. [Reducing absenteeism from gastrointestinal and respiratory illness in elementary school students: A randomized, controlled trial of an infection-control intervention. *Pediatrics*. 2008 Jun; 121\(6\): e1, 555-e1.](#)

[562. PMID: 18519460. \(hand search\).](#)

Schaffner DW, Schaffner KM. [Management of risk of microbial cross-contamination from uncooked frozen hamburgers by alcohol-based hand sanitizer.](#) *J Food Prot.* 2007 Jan;70(1): 109-113. PMID: 17265868.

Thorrold CA, Letsoalo ME, Dusé AG, Marais E. [Efflux pump activity in fluoroquinolone and tetracycline resistant Salmonella and E. coli implicated in reduced susceptibility to household antimicrobial cleaning agents.](#) *Int J Food Microbiol.* 2007 Feb 15; 113(3): 315-320. Epub 2006 Nov 27. PMID: 17126442.

Tousman S, Arnold D, Helland W, Roth R, Heshelman N, Castaneda O, Fischer E, O'Neil K, Bileto S. [Evaluation of a hand washing program for 2nd-graders.](#) *J Sch Nurs.* 2007 Dec; 23(6): 342-348. PMID: 18052520.

Vessey JA, Sherwood JJ, Warner D, Clark D. [Comparing hand washing to hand sanitizers in reducing elementary school students' absenteeism.](#) *Pediatr Nurs.* 2007 Jul-Aug; 33(4): 368-372. PMID: 17907739. (hand search).

White C, Kolble R, Carlson R, Lipson N. [The impact of a health campaign on hand hygiene and upper respiratory illness among college students living in residence halls.](#) *J Am Coll Health.* 2005 Jan-Feb; 53(4): 175-181. PMID: 15663066.

QUESTION

RISKY FOODS: To what extent do US consumers eat raw or undercooked animal foods?

Reviews/Meta-analyses Citations (2)

Patil SR, Cates S, Morales R. [Consumer food safety knowledge, practices, and demographic differences: Findings from a meta-analysis.](#) *J Food Prot.* 2005 Sep; 68(9): 1, 884-1, 894. PMID: 16161688.

Redmond EC, Griffith CJ. [Consumer food handling in the home: A review of food safety studies.](#) *J Food Prot.* 2003 Jan; 66(1): 130-161. Review. PMID: 12540194

Primary Research Citations (6)

Anderson JB, Shuster TA, Hansen KE, Levy AS, Volk A. [A camera's view of consumer food-handling behaviors.](#) *J Am Diet Assoc.* 2004 Feb; 104(2): 186-191. PMID: 14760565.

Byrd-Bredbenner C, Abbot JM, Wheatley V, Schaffner D, Bruhn C, Blalock L. [Risky eating behaviors of young adults-implications for food safety education.](#) *J Am Diet Assoc.* 2008 Mar; 108(3): 549-552. PMID: 18313439.

Dharod JM, Pérez-Escamilla R, Paciello S, Venkitanarayanan K, Bermúdez-Millán A, Damio G. Critical control points for home prepared 'chicken and salad' in Puerto Rican households. *Food Protection Trends.* 2007; 27: 544-552.

Kaylegian, KE, Moag R, Galton DM, Boor KJ. Raw milk consumption beliefs and practices among New York State dairy producers. *Food Protection Trends.* 2008, 28 (3) 184-191. (Database: FSTA).

López Osornio MM, Hough G, Salvador A, Chambers IV E, McGraw S, Fiszman S. [Beef's optimum internal cooking temperature as seen by consumers from different countries using survival analysis statistics.](#) *Food Quality and Preference.* 2008 Jan. 19(1): 12-20. (Database: Science Direct).

Trepka MJ, Newman FL, Dixon Z, Huffman FG. [Food safety practices among pregnant women and mothers in the women, infants, and children program, Miami, Florida.](#) *J Food Prot.* 2007 May; 70(5): 1, 230-1, 237. PMID: 17536684.

QUESTION:

CLEAN: What techniques for washing fresh produce are associated with favorable food safety outcomes?

Reviews/Meta-analyses Citations (0)

None.

Primary Research Citations (3)

Dharod JM, Pérez-Escamilla R, Paciello S, Venkitanarayanan K, Bermúdez-Millán A, Damio G. Critical control points for home prepared 'chicken and salad' in Puerto Rican households. *Food Protection Trends.* 2007; 27: 544-552.

Kilonzo-Nthenge A, Chen FC, Godwin SL. [Efficacy of home washing methods in controlling surface microbial contamination on fresh produce.](#) *J Food Prot.* 2006 Feb; 69(2): 330-334. PMID: 16496573.

Parnell TL, Harris LJ, Suslow TV. [Reducing Salmonella on cantaloupes and honeydew melons using wash practices applicable to post-harvest handling, foodservice, and consumer preparation.](#) *Int J Food Microbiol.* 2005 Mar 1; 99(1): 59-70. PMID: 15718029.

QUESTION:

CLEAN: To what extent do US consumers follow techniques for washing fresh produce that are associated with favorable food safety outcomes?

Reviews/Meta-analyses Citations (0)

None.

Primary Research Citations (2)

Anderson JB, Shuster TA, Hansen KE, Levy AS, Volk A. [A camera's view of consumer food-handling behaviors.](#) *J Am Diet Assoc.* 2004 Feb; 104(2): 186-191. PMID: 14760565.

Dharod JM, Pérez-Escamilla R, Paciello S, Bermúdez-Millán A, Venkitanarayanan K, Damio G. [Comparison between self-reported and observed food handling behaviors among Latinas.](#) *J Food Prot.* 2007 Aug; 70(8): 1, 927-1, 932. PMID: 17803151

List of Excluded Articles with Reason

Article	Reason for Exclusion
Aiello AE, Malinis M, Knapp JK, Mody L. The influence of knowledge, perceptions, and beliefs, on hand hygiene practices in nursing homes. <i>Am J Infect Control.</i> 2009 Mar; 37(2): 164-167. Epub 2008 Oct 22. PMID: 18945512.	Does not answer the question (not in-home).
Allende A, Selma MV, López-Gálvez F, Villaescusa R, Gil MI. Impact of wash water quality on sensory and microbial quality, including <i>Escherichia coli</i> cross-contamination, of fresh-cut escarole. <i>J Food Prot.</i> 2008 Dec; 71(12): 2, 514-2, 518. PMID: 19244906.	Food-industry-related, focusing only on wash water quality in industrial processing plant.
Altekruse SF, Yang S, Timbo BB, Angulo FJ. A multi-state survey of consumer food-handling and food-consumption practices. <i>Am J Prev Med.</i> 1999 Apr; 16(3): 216-221. PMID: 10198661.	Published before 1/2003 (systematic review) or 6/2004.
Alvarado-Casillas S, Ibarra-Sánchez S, Rodríguez-García O, Martínez-González N, Castillo A. Comparison of rinsing and sanitizing procedures for reducing bacterial pathogens on fresh cantaloupes and bell peppers. <i>J Food Prot.</i> 2007 Mar; 70(3): 655-660. PMID: 17388055.	Food-industry-related, focusing only on industrial procedures to reduce contamination at produce packing facilities.
Amoah P, Drechsel P, Abaidoo RC, Klutse A. Effectiveness of common and improved sanitary washing methods in selected cities of West Africa for the reduction of coliform bacteria and helminth eggs on vegetables. <i>Trop Med Int Health.</i> 2007 Dec; 12 Suppl 2: 40-50. PMID: 18005314.	Third world population (West Africa).
Amoah P, Drechsel P, Abaidoo RC, Ntow WJ. Pesticide and pathogen contamination of vegetables in Ghana's urban markets. <i>Arch Environ Contam Toxicol.</i> 2006 Jan; 50(1): 1-6. Epub 2005 Nov 15. PMID: 16328619.	Third world population (Ghana).
Azevedo I, Regalo M, Mena C, Almeida G, Carneiro L, Teixeira P, Hogg T, Gibbs PA. Incidence of <i>Listeria spp.</i> in domestic refrigerators in Portugal. <i>Food Control.</i> 2005 Feb; 16(2): 121-124. (Science Direct database) (Note: hyperlink is to the FULL article.)	International study (Portugal).
Black DG, Taylor TM, Kerr HJ, Padhi S, Montville TJ, Davidson PM. Decontamination of fluid milk containing <i>Bacillus</i> spores using commercial household products. <i>J Food Prot.</i> 2008 Mar; 71(3): 473-478. PMID: 18389688.	Does not answer the question (decontamination of milk methods in case of terrorist attack).

Bloomfield SF, Aiello AE, Cookson B, O'Boyle C, Larson EL. The effectiveness of hand hygiene procedures in reducing the risks of infections in home and community settings including handwashing and alcohol-based hand sanitizers. <i>Am J Infect Control.</i> 2007 Dec; 35(10, Suppl. 1): S27-S64.	Narrative review in part.
Bremer V, Bocter N, Rehmet S, Klein G, Breuer T, Ammon A. Consumption, knowledge, and handling of raw meat: a representative cross-sectional survey in Germany, March 2001. <i>J Food Prot.</i> 2005 Apr;68(4):785-9. PubMed PMID: 15830671.	International study (Germany).
Chai LC, Lee HY, Ghazali FM, Abu Bakar F, Malakar PK, Nishibuchi M, Nakaguchi Y, Radu S. Simulation of cross-contamination and decontamination of <i>Campylobacter jejuni</i> during handling of contaminated raw vegetables in a domestic kitchen. <i>J Food Prot.</i> 2008 Dec; 71(12): 2, 448-2, 452. PMID: 19244897.	International study.
Fawzi M, El-Sahn AA, Ibrahim HF, Shehata AI. Vegetable-transmitted parasites among inhabitants of El-Prince, Alexandria and its relation to housewives' knowledge and practices. <i>J Egypt Public Health Assoc.</i> 2004; 79(1-2): 13-29. PMID: 16916047.	Third world conditions (produce contaminated with helminthic eggs and protozoan cysts in Egypt).
Gilbert SE, Whyte R, Bayne G, Paulin SM, Lake RJ, van der Logt P. Survey of domestic food handling practices in New Zealand. <i>Int J Food Microbiol.</i> 2007 Jul 15; 117(3): 306-311. Epub 2007 May 17. PMID: 17566578.	International study (New Zealand).
Haysom IW, Sharp AK. Bacterial contamination of domestic kitchens over a 24-hour period. <i>British Food Journal.</i> 2005; 107(7, Consumer Food Safety): 453-466. (hyperlink to abstract: http://www.emeraldinsight.com/Insight/viewContentItem.do?contentType=Article&contentId=1509534) (FSTA database).	International study (UK).
Jackson V, Blair IS, McDowell DA, Kennedy J, Bolton DJ. The incidence of significant foodborne pathogens in domestic refrigerators. <i>Food Control.</i> 2007 May; 18(4): 346-351. (Science Direct database) (Note: hyperlink is to the FULL article.)	International study (Ireland).
Jevšnik M, Hlebec V, Raspor P. Consumers' awareness of food safety from shopping to eating. <i>Food Control.</i> 2008 Aug; 19(8): 737-745. (Database: Science Direct).	International study (Slovenia).
Kampf G, Ostermeyer C. Efficacy of alcohol-based gels compared with simple hand wash and hygienic hand disinfection. <i>J Hosp Infect.</i> 2004 Apr; 56 Suppl 2: S13-S135. PMID: 15110117.	Does not answer the question (hand wash gels for hospital hygienic hand disinfection).
Karabudak E, Bas M, Kiziltan G. Food safety in the home consumption of meat in Turkey. <i>Food Control.</i> 2008 Mar; 19(3): 320-327. (Database: Science Direct).	International study (Turkey).
Kendall PA, Elsbernd A, Sinclair K, Schroeder M, Chen G, Bergmann V, Hillers VN, Medeiros LC. Observation versus self-report: Validation of a consumer food behavior questionnaire. <i>J Food Prot.</i> 2004 Nov; 67(11): 2, 578-2, 586. PMID: 5553645.	Does not answer the question (on validation of measurement tool).
Kennedy J, Blair IS, McDowell DA, Bolton DJ. The microbiological status of non/food contact surfaces in domestic kitchens and the growth of <i>Staphylococcus aureus</i> in domestic refrigerators. <i>Food Protection Trends.</i> 2005; 25(12): 974-980. (No hyperlinked abstract available) (FSTA database).	International study (Ireland).
Kosa KM, Cates SC, Karns S, Godwin SL, Chambers D. Consumer home refrigeration practices: Results of a web-based survey. <i>J Food Prot.</i> 2007 Jul; 70(7): 1, 640-1, 649. PMID: 17685337.	Already abstracted for other food safety question.
Legendijk E, Asséré A, Derens E, Carpentier B. Domestic refrigeration practices with emphasis on hygiene: Analysis of a survey and consumer recommendations. <i>J Food Prot.</i> 2008 Sep; 71(9): 1, 898-1, 904. PMID: 18810875.	International study.

<p>Loureiro ML and Umberger WJ. A choice experiment model for beef: What US consumer responses tell us about relative preferences for food safety, country-of-origin labeling and traceability. <i>Food Policy</i>. 2007 Aug; 32(4): 496-514. (Database: Science Direct).</p>	<p>Does not answer the question (focus is on consumer preferences related to country-of-origin labeling, traceability and food safety inspections).</p>
<p>Luby SP, Halder AK. Associations among handwashing indicators, wealth, and symptoms of childhood respiratory illness in urban Bangladesh. <i>Trop Med Int Health</i>. 2008 Jun; 13(6): 835-844. Epub 2008 Mar 24. PMID: 18363587.</p>	<p>Third world population (Bangladesh).</p>
<p>Luby SP, Agboatwalla M, Feikin DR, Painter J, Billhimer W, Altaf A, Hoekstra RM. Effect of handwashing on child health: a randomised controlled trial. <i>Lancet</i>. 2005 Jul 16-22; 366(9, 481): 225-233. PMID: 16023513.</p>	<p>Third world population (Pakistan).</p>
<p>Luby SP, Agboatwalla M, Painter J, Altaf A, Billhimer WL, Hoekstra RM. Effect of intensive handwashing promotion on childhood diarrhea in high-risk communities in Pakistan: A randomized controlled trial. <i>JAMA</i>. 2004 Jun 2; 291(21): 2, 547-2, 554. PMID: 15173145.</p>	<p>Third world population (Pakistan).</p>
<p>McGuckin M, Waterman R, Shubin A. Consumer attitudes about health care-acquired infections and hand hygiene. <i>Am J Med Qual</i>. 2006 Sep-Oct; 21(5): 342-346. PMID: 16973951.</p>	<p>Does not answer question (focus on consumer attitudes on hand hygiene not practices and behaviors).</p>
<p>Nazarko L. Potential pitfalls in adherence to hand washing in the community. <i>Br J Community Nurs</i>. 2009 Feb; 14(2): 64-68. Review. PMID: 19223812.</p>	<p>Does not answer the question (role of community nurse in increasing hand washing in community),</p>
<p>Picheansathian W. A systematic review on the effectiveness of alcohol-based solutions for hand hygiene. <i>Int J Nurs Pract</i>. 2004 Feb; 10(1): 3-9. Review. PMID: 14764017.</p>	<p>Study in hospital setting.</p>
<p>Pivarnik LF, Patnod MS, Leydon N, Gable RK. New England home gardeners' food safety knowledge of fresh fruits and vegetables. <i>Food Protection Trends</i>. 2006, 26(5): 298-309. (No hyperlinked abstract available) (FSTA database),</p>	<p>Excluded because it focuses only on consumer knowledge and attitudes, not behaviors.</p>
<p>Renfrew MJ, McLoughlin M, McFadden A. Cleaning and sterilisation of infant feeding equipment: A systematic review. <i>Public Health Nutr</i>. 2008 Nov; 11(11): 1, 188-1, 199. Epub 2008 Feb 26. Review. PMID: 18298883.</p>	<p>Outside age range (infants).</p>
<p>Rosen L, Zucker D, Brody D, Engelhard D, Manor O. The effect of a handwashing intervention on preschool educator beliefs, attitudes, knowledge and self-efficacy. <i>Health Educ Res</i>. 2009 Mar 24. [Epub ahead of print] PMID: 19318523.</p>	<p>Does not answer the question [not in-home (preschool setting) and focus is on attitudes on hand washing].</p>
<p>Rosen L, Manor O, Engelhard D, Brody D, Rosen B, Peleg H, Meir M, Zucker D. Can a handwashing intervention make a difference? Results from a randomized controlled trial in Jerusalem preschools. <i>Prev Med</i>. 2006 Jan; 42(1): 27-32. Epub 2005 Nov 21. PMID: 16300823.</p>	<p>Does not answer the question [not in-home (preschool setting)].</p>
<p>Sanlier N. The knowledge and practice of food safety by young and adult consumers. <i>Food Control</i>. 2009 Jun; 20(6): 538-542. (Database: Science Direct).</p>	<p>International study (Turkey).</p>

Scott E, Vanick K. A survey of hand hygiene practices on a residential college campus. <i>Am J Infect Control.</i> 2007 Dec; 35(10): 694-696. PMID: 18063136.	Did not answer question (focus more on awareness of proper hand washing behaviors and availability of hand washing materials on campus).
Snyder OP. Removal of bacteria from fingertips and the residual amount remaining on the hand washing nailbrush. <i>Food Protection Trends.</i> 2007; 27(8): 597-602.	Study designed to examine value of nail brush in washing hands in food service operation.
Sonesson U, Anteson F, Davis J, Sjöden PO. Home transport and wastage: environmentally relevant household activities in the life cycle of food. <i>Ambio.</i> 2005 Jun; 34(4-5): 371-375. PMID: 16092271.	Does not answer the question (on food wastage).
Souweine B, Lautrette A, Aumeran C, Bénédit M, Constantin JM, Bonnard M, Guélon D, Amat G, Aublet B, Bonnet R, Traoré O. Comparison of acceptability, skin tolerance, and compliance between handwashing and alcohol-based handrub in ICUs: Results of a multicentric study. <i>Intensive Care Med.</i> 2009 Apr 15. [Epub ahead of print] PMID: 19367395.	In-hospital setting.
Stout A, Ritchie K, Macpherson K. Clinical effectiveness of alcohol-based products in increasing hand hygiene compliance and reducing infection rates: A systematic review. <i>J Hosp Infect.</i> 2007 Aug; 66(4): 308-312. Epub 2007 Jul 25. Review. PMID: 17655977.	In-hospital setting.
Taormina PJ, Dorsa WJ. Evaluation of hot-water and sanitizer dip treatments of knives contaminated with bacteria and meat residue. <i>J Food Prot.</i> 2007 Mar; 70(3): 648-654. PMID: 17388054.	In food industry setting (pork processing plant).
Unusan N. Consumer food safety knowledge and practices in the home in Turkey. <i>Food Control.</i> 2007 Jan; 18(1): 45-51. (Database: Science Direct).	International study (Turkey).
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